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"The Only Thing That Is Constant Is Change": A Brief Overview on How Technology Has Changed Futures Markets Part II

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Part II

Market Report	Year Ago	4 Wks Ago	10-31-15
Livestock and Products, Weekly Average			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.	167.85	117.28	138.14
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb.	283.77	213.50	220.29
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb.	246.67	192.97	200.83
Choice Boxed Beef, 600-750 lb. Carcass.	251.79	208.44	219.22
Western Corn Belt Base Hog Price Carcass, Negotiated.	86.31	71.24	60.77
Pork Carcass Cutout, 185 lb. Carcass 51-52% Lean.	98.02	84.59	81.94
Slaughter Lambs, wooled and shorn, 135-165 lb. National.	164.50	155.04	156.73
National Carcass Lamb Cutout FOB.	377.27	359.40	357.69
Crops, Daily Spot Prices			
Wheat, No. 1, H.W. Imperial, bu.	5.21	4.27	4.14
Corn, No. 2, Yellow Nebraska City, bu.	3.29	3.54	3.52
Soybeans, No. 1, Yellow Nebraska City, bu.	9.68	8.07	8.26
Grain Sorghum, No.2, Yellow Dorchester, cwt.	6.34	6.00	5.93
Oats, No. 2, Heavy Minneapolis, Mn, bu.	3.42	2.45	2.60
Feed			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.	215.00	180.00	185.00
Alfalfa, Large Rounds, Good Platte Valley, ton.	85.00	75.00	75.00
Grass Hay, Large Rounds, Good Nebraska, ton.	85.00	80.00	77.50
Dried Distillers Grains, 10% Moisture Nebraska Average.	112.50	125.00	112.50
Wet Distillers Grains, 65-70% Moisture Nebraska Average.	43.00	50.00	49.50

* No Market

In our previous Cornhusker Economics (10/28/2015) we talked about the emergence of electronic trading in futures markets and new trading practices that came with it. In particular, we discussed spoofing and mentioned the trial in Chicago of a trader accused of "spoofing" commodity futures markets. As I write this article, a "breaking news" alert, pops up on my computer screen which informs me that the trial is over and the jury has just reached a verdict. As the Financial Times reports, the trader was found guilty on 12 accounts, "including intending to defraud other traders by flooding gold, corn, soybeans, foreign exchange and crude oil futures markets with small orders with the intent of cancelling them" (i.e. spoofing).

Throughout the trial in Chicago, some interesting points emerged during the arguments from the prosecutor and defense attorneys. The first one was that it is not easy to prove that any given trader is really spoofing the market. Indeed, this implies proving that orders were intentionally placed to be cancelled before execution. Without records showing this kind of intention, it is not always easy to prove it. A typical line of defense is that the trader actually intended to execute all the orders, and that fast order cancellations are a normal and legitimate practice in the new world of high-frequency trading (HFT). In fact, there is nothing new about cancelling orders; traders have done that since the beginning of trading times. In the environment of

electronic trading and HFT, order cancellations become anonymous and much faster (within seconds or even milliseconds), but it can still be a legitimate trading practice. Just to be clear, cancelling orders is not prohibited or illegal; the problem is placing and cancelling them with the intention to mislead other traders and profit from that.

Further, according to the Chicago Tribune, the defendant argued that he was not spoofing the market, but rather trying to "create a *lopsided market* that encouraged other participants to enter the market so he could act as a market maker and profit legitimately from the spread between the lowest selling price and the highest buying price." Regardless of the merit of his claim, that brings us to the role of a market maker in futures markets. Market makers are common players in financial markets in general, and their function is to provide liquidity to the market. Market makers are always ready to buy or sell, and they are constantly posting *bid* and *ask* prices for each commodity (or asset) they trade. The *bid* represents the price at which they agree to buy and the *ask* represents the price at which they agree to sell.

Market makers are typically trading all the time. If they use futures contracts to buy corn from you at their bid price, they want to turn around and sell that corn to somebody else at their ask price (and vice-versa). They offer a service to the market by providing liquidity, and the difference between their bid and ask (the bid-ask spread) represents how much they charge for this service. The bid-ask spread reflects how much market makers believe they need to charge in order to make a profit from their liquidity-providing job. In markets with larger number of participants, it is easier to find buyers and sellers and hence market makers typically lower their bid-ask spread. In other words, in more liquid markets, it is easier to get in and out of the market and market makers charge less for their service, hence it is "cheaper" to trade.

Has the larger liquidity that emerged with electronic trading reduced trading costs? Unfortunately, the answer to this question is not so simple. Several studies have investigated the bid-ask spread (our measure of trading costs) before and after the adoption of electronic trading, and during different periods since electronic trading started. In general, results suggest that bid-ask spreads have been reduced. Proponents of electronic trading and HFT often claim that the new trading systems provide more liquidity to markets, which leads to more accurate prices and lower trading costs. This has been the main "line of defense" for electronic trading and HFT.

However, the story does not end here. Critics argue that there are studies that find contrasting results, i.e. bid-ask spreads may have risen in some markets. In addition, bid-ask spreads may have narrowed on average, but there are also concerns about the quality of the liquidity that allowed for narrower spreads. Automated or algorithmic trading have created a much larger trading volume, but they have also disrupted trading at least a few times. There have been reports of some events in which market prices swung dramatically within a few minutes, affecting the accuracy of market prices and creating more risk for market participants (such as the "flash crash" of May 6, 2010). Those events were likely caused by improper execution of trading orders, such as traders accidentally hitting the "wrong button" on their computers or automated systems malfunctioning. During these disruptions, the market becomes more volatile, which increases the risk for open positions in the market. This can trigger built-in controls in automated systems, leading them to offset their positions and thus making those price swings even wilder. Another issue observed in those events is that some HFT firms seem to have reduced or paused their trading for a while, which implies that the market would abruptly become less liquid when it actually needed that liquidity the most. It would suddenly become harder for traders to get out of the market during those volatile periods.

Problems with order execution are certainly not new, but in the current environment with larger and faster orders, they can potentially lead to larger and faster disruptions. Critics argue that current trading systems lack human judgement. Machines just follow a pre-determined set of orders and do not have the capacity to judge when they should or should not be executed (some people have actually been trying to develop trading systems based on artificial intelligence, but this is a topic for another discussion). When things go wrong, and they now

can go wrong very fast, the consequences may be dramatic until somebody has time to understand what is happening and figure out how to stop it.

In principle, electronic trading has brought benefits to the market. However, it is not completely clear whether those benefits are always present or they outweigh potential disruptions caused by new trading systems and strategies. Either way, the futures market is not going back to the open outcry system in the pits. Electronic trading is here to stay. In reality, the increasingly large volume of futures contracts can only be handled by computers. The question we need to debate is not whether we should have electronic trading, but rather how we want to shape it.

During last month's trial, the Chicago Tribune reported an interesting argument. According to the prosecutor, a large chicken producer "was frustrated in its efforts to buy corn futures" due to the spoofing practices that disrupted the corn futures market. The defense attorney argued that "that's on them – they should have invested in algorithms", suggesting the chicken producer was to blame for not keeping up with modern trading practices. It is questionable whether this particular argument makes sense, but it makes me think about a more general question: since all trading in futures markets is now electronic, and a large (and perhaps increasingly larger) portion of it happens faster than human traders can handle, are we moving towards a predominantly automated trading world? If so, is this really beneficial for market participants?

The above point related to the chicken producer trying to hedge the price of corn also reminds us of the very basic nature of futures markets. They were developd to provide risk management opportunities and price discovery tools for the industry, i.e. to facilitate trading in the commercial world. Speculators were attracted to those markets looking to make profits, and the added liquidity provided by them was and still is welcome. As we discussed before, more liquid markets have several advantages and tend to make it easier for commercial traders to use futures markets for risk management and price discovery. However, it now remains to be further debated whether potential disruptions generated by recent developments in trading systems may outweigh the benefits of the larger liquidity provided by those systems. Currently, it appears we do not have a clear answer to these questions. More and better data, along with more research, are needed in order to properly address these points.

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